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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/462,337	04/17/2000	Klaus-Peter Zeffler	2345/110	4964

7590 02/26/2003

KENYON & KENYON
ONE BROADWAY
NEW YORK, NY 10004

[REDACTED] EXAMINER

KIM, DAVID S

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 02/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/462,337	ZEFFLER ET AL.
	Examiner David S. Kim	Art Unit 2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 17 April 2000.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 14-27 is/are pending in the application.

4a) Of the above claim(s) 24-26 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 14-23 and 27 is/are rejected.

7) Claim(s) 20 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 17 April 2000 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ .
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) Z .	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

Election/Restrictions

1. This application contains claims directed to the following patentably distinct species of the claimed invention:

Species I) Fig. 3, corresponding to claims 19-23 and 27

Species II) Fig. 4, corresponding to claims 24-26.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, **claims 14-18** are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

2. During a telephone conversation with Ms. Linda Shudy, Esq. on 31 January 2003, a provisional election was made without traverse to prosecute the invention of **Species I, claims**

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19-23 and 27 with generic claims 14-18. Affirmation of this election must be made by applicant in replying to this Office action. **Claims 24-26 are withdrawn** from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Objections

4. **Claim 20** is objected to because of the following informalities:

“ $T - T_{OH} + 2\delta$ ” is used where “ $T - (T_{OH} + 2\delta)$ ” may be intended.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. **Claims 14 and 18-20** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. There appears to be conflicts between the invention claimed and the invention disclosed.

Regarding claim 14, in lines 22-23, the claimed invention transmits the signaling and control information “as the useful information.” On page 4, lines 5-15, the disclosed invention transmits the signaling and control information “is transmitted with the same fundamental wavelength” as that used in transmitting the useful information signal. This conflict renders the claim indefinite.

Regarding claim 18, the term "short" in claim 18 is a relative term which renders the claim indefinite. The term "short" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. In particular, the term "short" renders the length of "intervals" indefinite in line 4.

Regarding claim 19, in line 4, the claimed invention incorporates a time interval δ existing between a suppression of the useful information and the transmission of the signaling and control information. In Fig. 2, the disclosed invention incorporates a time interval δ existing between a transmission of the useful information and the transmission of the signaling and control information. This conflict renders the claim indefinite.

Regarding claim 20, in line 6, the claimed invention incorporates "an intervening interval with a duration of $T - T_{OH} + 2\delta$." In Fig. 2, the disclosed invention incorporates an intervening interval with a duration of $T - (T_{OH} + 2\delta)$. This conflict renders the claim indefinite.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claim 14-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Widmer et al. (U.S. Patent No. 4,151,373) in view of Nakamura et al. (U.S. Patent No. 5,144,466).

Regarding claim 14, Widmer et al. discloses:

A method for transmitting signaling and control information (Widmer et al., col. 1, lines 12-24) for a network that performs an information transfer in a digitized form, comprising the steps of:

performing one of a generation (Widmer et al., col. 7, lines 6-10) and an analysis (Widmer et al., col. 1, lines 15-20) of the signaling and control information in one of a network terminator and in a further network element (Widmer et al., another network terminator, not shown);

performing one of the steps of:

feeding (Widmer et al., col. 3, lines 18-21) the signaling and control information into the network, and

removing (Widmer et al., col. 3, lines 42-44) the signaling and control information from the network;

using a time-division multiplex operation (Widmer et al., Figs. 1-3a) to transmit the signaling and control information via the same components (Widmer et al., Fig. 4) of the network as those used to transmit the useful information, wherein the signaling and control information is capable of being modulated independently (Widmer et al., col. 1, lines 12-15; note separate “data source” and “extra information source” in Fig. 4) of the useful information.

Widmer et al. does not expressly disclose the following (but Nakamura et al. does):

said network being a wavelength-division multiplex network (Nakamura et al., Figs. 5 and 9) that performs optical, fiber-bound information transfer;

the step of using a terminal (Nakamura et al., communication interfaces 71-74 in Fig. 5) to process useful information according to one of an optical encoding and an optical decoding (Nakamura et al., encoder-decoders 82, 87, 91 in Figs. 6A-6D);

the step of performing one of the steps of:

feeding at a network terminator (Nakamura et al., communication interfaces 71-74 in Fig. 5) the useful information into the wavelength-division multiplex network as an optical signal having a defined fundamental wavelength (Nakamura et al., wavelengths $\lambda_1-\lambda_4$ in Figs. 6A-6D) and

removing at the network terminator the useful information from the wavelength-division multiplex network as the optical signal having the defined fundamental wavelength; and
the step of transmitting (Nakamura et al., Figs. 6B-6D) collectively a plurality of signals having different wavelengths in an optical fiber.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to implement the signaling and control information transmitting method of Widmer et al. in the network of Nakamura et al. One of ordinary skill in the art would have been motivated to do this to provide the large capacity and high-speed transmission (Nakamura et al., col. 1, lines 23-36) benefits of a WDM/TDM network.

Regarding claim 15, Widmer et al. in view of Nakamura et al. discloses:

The method according to claim 14, wherein the signaling and control information includes a characteristic signal sequence (Widmer et al., col. 6, lines 50-55; col. 9, lines 1-6) by which the signaling and control information is capable of being identified in a signal stream of the useful information such that corresponding transmitters and receivers of the signaling and control information are synchronized.

Regarding claim 16, Widmer et al. in view of Nakamura et al. discloses:

The method according to claim 14, further comprising the step of:
Transmitting the signaling and control information at regular time intervals T (Widmer et al., Fig. 3a, col. 4, lines 34-49) for a predetermined duration of T_{OH} (Widmer et al., m bits in Fig. 3a).

Regarding claim 17, Widmer et al. in view of Nakamura et al. discloses:

The method according to claim 16, wherein each regular time interval T is a multiple of a characteristic clock pulse duration of the useful information (Widmer et al., col. 9, lines 44-57).

Regarding claim 18, Widmer et al. in view of Nakamura et al. discloses:

The method according to claim 16, wherein:

A synchronization between a transmitter and a receiver of the signaling and control information is accomplished by a characteristic signal being transmitted at short intervals (Widmer et al., col. 6, lines 50-55; col. 9, lines 1-6).

Widmer et al. in view of Nakamura et al. does not expressly disclose:

following the synchronization, the characteristic signal being transmitted at variable duration time intervals that gradually increase up to a duration of the regular time intervals T.

However, this step would have been obvious to one of ordinary skill in the art. This step can be used for incrementally training a synchronized transmitter and a synchronized receiver to operate synchronously from an initial synchronization stage that uses short interval transmissions to a steady-state operation stage that uses regular time intervals T. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to include this step in the method of Widmer et al. in view of Nakamura et al. One of ordinary skill in the art would have been motivated to do this in order to transition smoothly from an initial synchronization stage to a steady-state operation stage without losing synchronous operation.

9. **Claims 19-23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Widmer et al. in view of Nakamura et al. as applied to claim 16 above, and further in view of Bingham et al. (U.S. Patent No. 5,644,573).

Regarding claim 19, Widmer et al. in view of Nakamura et al. discloses all the limitations of claim 19 except for the time interval δ . Bingham et al. discloses such a time interval (Bingham et al., time intervals S₁, S₂, and S₃ in Fig. 3). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the time interval of Bingham et al. in the signal and control information transmission of Widmer et al. One of ordinary skill in the art would have been motivated to do this to provide the benefits of “a

variety of control type functions such as synchronization of new remote units, transmission channel quality checking and handling data transfer requests" (Bingham et al., abstract).

Regarding claim 20, Widmer et al. in view of Nakamura et al., further in view of Bingham et al. discloses:

The method according to claim 19, further comprising the steps of:
during the interruption lasting for the duration of $T_{OH} + 2\delta$ resulting from the transmission of the signaling and control information, buffering (Widmer et al., Fig. 3b, col. 4, lines 50-54) the useful information in a transmitting terminal equipment (Widmer et al., Fig 4);
and
during an intervening interval with a duration of $T - (T_{OH} + 2\delta)$, transmitting the useful information at such an increased bit rate that an average bit rate corresponds to an uninterrupted useful information transfer (Widmer et al., col. 2, lines 29-52).

Regarding claim 21, Widmer et al. in view of Nakamura et al., further in view of Bingham et al. discloses:

The method according to claim 20, wherein the transmitting terminal equipment includes shift registers (Widmer et al., col. 7, lines 22-29).

Regarding claim 22, Widmer et al. in view of Nakamura et al., further in view of Bingham et al. discloses:

The method according to claim 20, further comprising the steps of:
causing the transmitting terminal equipment to reserve time gaps of the duration $T_{OH} + 2\delta$ in the useful information; and
causing the transmitting terminal equipment to signal a temporal position (Widmer et al., col. 4, lines 60-62) of the reserved time gaps via the network terminator to a network element (Widmer et al., col. 4, lines 61-62) transmitting the signaling and control information.

Regarding claim 23, Widmer et al. in view of Nakamura et al., further in view of Bingham et al. discloses:

The method according to claim 20, further comprising the steps of:
causing the network terminator to inform the transmitting terminal equipment of when (Widmer et al., col. 4, line 56 – col. 7, line 39) a time gap having the duration of $T_{OH} + 2\delta$ in the useful information is to be reserved for the transmission of the signaling and control information; and

causing the network terminator to inform the transmitting terminal equipment of when (Widmer et al., col. 6, lines 39-49) the useful information is to be buffered.

10. **Claim 27** is rejected under 35 U.S.C. 103(a) as being unpatentable over Widmer et al. in view of Nakamura et al., further in view of Bingham et al., as applied to claim 20 above, and further in view of Choquet (U.S. Patent No. 4,330,858).

Widmer et al. in view of Nakamura et al., further in view of Bingham et al., discloses:
causing the network terminator to communicate (Widmer et al., col. 4, lines 60-62) the signaling and control information to the transmitting terminal;
causing the transmitting terminal to optically encode (Nakamura et al., encoder-decoders 82, 87, 91 in Figs. 6A-6D) the signaling and control information and transmit the signaling and control information via the wavelength-division multiplex network; and
causing a receiving terminal provided with the encoded useful information to:
decode (Nakamura et al., encoder-decoders 82, 87, 91 in Figs. 6A-6D) the signaling and control information,
filter out (Widmer et al., col. 3, lines 42-44) the signaling and control information from the useful information, and
Widmer et al. in view of Nakamura et al., further in view of Bingham et al., does not expressly disclose:

causing a receiving terminal provided with the encoded useful information to communicate the signaling and control information to an upstream receiver-end network terminator.

Choquet teaches causing such a receiving terminal (Choquet, Fig. 5) to communicate signaling and control information to supervisory equipment (Choquet, col. 2, lines 25-33). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of Choquet by communicating the signaling and control information to an upstream receiver-end network terminator in the method of Widmer et al. in view of Nakamura et al., further in view of Bingham et al. One of ordinary skill in the art would have been motivated to do this so since "it has been found costly and otherwise undesirable to provide special modems or special separate communication channels for handling supervisory messages. It is preferable that supervisory messages be communicated by facilities which are no more expensive and require no greater frequency bandwidth than the facilities that otherwise would be needed to handle normal message traffic in the complete absence of any supervisory messages" (Choquet, col. 1, lines 27-35). The supervisory messages of Choquet correspond to the signaling and control information of Widmer et al. in view of Nakamura et al., further in view of Bingham et al. The final end receiver of the useful information signal would have no use for signaling and control information related to the network; conversely, other components, such as network terminators, depend on such signaling and control information for proper operation.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Holland is cited to show related methods of synchronization, characteristic signals, regular time intervals T, and shift registers. Pachynski, Jr. is cited to show related methods of independent modulation of useful information and signaling and control information and

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related methods of synchronization. Gotz et al. is cited to show related methods of independent modulation of useful information and signaling and control information, optical transmission, and regular time intervals T that are multiples of a characteristic clock pulse duration of the useful information. Satoh is cited to show related methods of independent modulation of useful information and signaling and control information. Emeott et al. is cited to show related methods of synchronization, characteristic signals, and overwriting useful information with signaling and control information. Ishikawa et al. is cited to show related methods of independent modulation of useful information and signaling and control information and characteristic signals. Acampora, Kamise et al., and Shimosaka et al. are cited to show related methods of combining WDM and TDM technology into one network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 703-305-6457. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703-305-4729. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

DSK
February 20, 2003


JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600